

Sequence Listing

<110> Jardieu, Paula M.
Presta, Leonard G.

<120> Anti-IgE Antibodies (as amended)

<130> P0718P2C1D1C1US

<141> 2001-08-08

<150> US 08/466,163

<151> 1995-06-06

<150> US 08/405,617

<151> 1995-03-15

<150> US 08/185,899

<151> 1994-01-26

<150> PCT/US92/06860

<151> 1992-08-14

<150> US 07/879,495

<151> 1992-05-07

<150> US 07/744,768

<151> 1991-08-14

<160> 68

<210> 1

<211> 109

<212> PRT

<213> Homo sapiens

<400> 1

Asp	Ser	Asn	Pro	Arg	Gly	Val	Ser	Ala	Tyr	Leu	Ser	Arg	Pro	Ser
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Pro	Phe	Asp	Leu	Phe	Ile	Arg	Lys	Ser	Pro	Thr	Ile	Thr	Cys	Leu
			20						25					30

Val	Val	Asp	Leu	Ala	Pro	Ser	Lys	Gly	Thr	Val	Asn	Leu	Thr	Trp
			35						40					45

Ser	Arg	Ala	Ser	Gly	Lys	Pro	Val	Asn	His	Ser	Thr	Arg	Lys	Glu
			50						55					60

Glu	Lys	Gln	Arg	Asn	Gly	Thr	Leu	Thr	Val	Thr	Ser	Thr	Leu	Pro
			65						70					75

Val	Gly	Thr	Arg	Asp	Trp	Ile	Glu	Gly	Glu	Thr	Gln	Cys	Arg	Val
			80						85					90

Thr	His	Pro	His	Leu	Pro	Arg	Ala	Leu	Met	Arg	Ser	Thr	Thr	Lys
			95						100					105

Thr Ser Gly Pro

<210> 2
 <211> 111
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 <213> Mus musculus

<400> 2
 Asp Ile Val Leu Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu
 1 5 10 15
 Gly Gln Arg Ala Thr Ile Ser Cys Lys Ala Ser Gln Ser Val Asp
 20 25 30
 Tyr Asp Gly Asp Ser Tyr Met Asn Trp Tyr Gln Gln Lys Pro Gly
 35 40 45
 Gln Pro Pro Ile Leu Leu Ile Tyr Ala Ala Ser Tyr Leu Gly Ser
 50 55 60
 Glu Ile Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 65 70 75
 Thr Leu Asn Ile His Pro Val Glu Glu Glu Asp Ala Ala Thr Phe
 80 85 90
 Tyr Cys Gln Gln Ser His Glu Asp Pro Tyr Thr Phe Gly Ala Gly
 95 100 105
 Thr Lys Leu Glu Ile Lys
 110

<210> 3
 <211> 134
 <212> PRT
 <213> Mus musculus

<400> 3
 Asp Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser
 1 5 10 15
 Gln Ser Leu Ser Leu Ala Cys Ser Val Thr Gly Tyr Ser Ile Thr
 20 25 30
 Ser Gly Tyr Ser Trp Asn Trp Ile Arg Gln Phe Pro Gly Asn Lys
 35 40 45
 Leu Glu Trp Met Gly Ser Ile Thr Tyr Asp Gly Ser Ser Asn Tyr
 50 55 60
 Asn Pro Ser Leu Lys Asn Arg Ile Ser Val Thr Arg Asp Thr Ser
 65 70 75
 Gln Asn Gln Phe Phe Leu Lys Leu Asn Ser Ala Thr Ala Glu Asp
 80 85 90
 Thr Ala Thr Tyr Tyr Cys Ala Arg Gly Ser His Tyr Phe Gly His
 95 100 105
 Trp His Phe Ala Val Trp Gly Ala Gly Thr Thr Val Thr Val Ser
 110 115 120
 Ser Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala Arg

125

130

<210> 4
 <211> 124
 <212> PRT
 <213> Mus musculus

<400> 4

Asp	Ile	Val	Met	Thr	Gln	Ser	Gln	Lys	Phe	Met	Ser	Thr	Ser	Val
1				5					10					15
Gly	Asp	Arg	Val	Ser	Val	Thr	Cys	Lys	Ala	Ser	Gln	Asn	Val	Ser
				20					25					30
Ser	Asn	Val	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Ser	Pro	Lys
				35					40					45
Ala	Leu	Ile	Tyr	Ser	Ala	Ser	Tyr	Arg	Tyr	Ser	Gly	Val	Pro	Asp
				50					55					60
Arg	Phe	Thr	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile
				65					70					75
Ser	Asn	Val	Gln	Ser	Glu	Asp	Leu	Ala	Glu	Tyr	Phe	Cys	Gln	Gln
				80					85					90
Tyr	Tyr	Thr	Tyr	Pro	Leu	Tyr	Thr	Phe	Gly	Gly	Gly	Thr	Lys	Leu
				95					100					105
Glu	Ile	Lys	Arg	Ala	Asp	Ala	Ala	Pro	Thr	Val	Ser	Ile	Phe	Pro
				110					115					120
Pro	Ser	Thr	Arg											

<210> 5
 <211> 130
 <212> PRT
 <213> Mus musculus

<400> 5

Asp	Val	Gln	Leu	Gln	Glu	Ser	Gly	Pro	Gly	Leu	Val	Lys	Pro	Ser
1				5					10					15
Gln	Ser	Leu	Ser	Leu	Thr	Cys	Thr	Val	Thr	Gly	Tyr	Thr	Ile	Thr
				20					25					30
Ser	Asp	Asn	Ala	Trp	Asn	Trp	Ile	Arg	Gln	Phe	Pro	Gly	Asn	Lys
				35					40					45
Leu	Glu	Trp	Met	Gly	Tyr	Ile	Asn	His	Ser	Gly	Thr	Thr	Ser	Tyr
				50					55					60
Asn	Pro	Ser	Leu	Lys	Ser	Arg	Ile	Ser	Ile	Thr	Arg	Asp	Thr	Ser
				65					70					75
Lys	Asn	Gln	Phe	Phe	Leu	Gln	Leu	Asn	Ser	Val	Thr	Thr	Glu	Asp
				80					85					90
Thr	Ala	Thr	Tyr	Tyr	Cys	Ala	Trp	Val	Val	Ala	Tyr	Ala	Met	Asp
				95					100					105

Tyr	Trp	Gly	Gln	Gly	Thr	Ser	Val	Thr	Val	Ser	Ser	Ala	Lys	Thr
				110					115					120

Thr	Pro	Pro	Ser	Val	Tyr	Pro	Leu	Ala	Arg
				125					130

<210> 6
 <211> 106
 <212> PRT
 <213> Mus musculus

<400> 6

Asp	Ile	Gln	Leu	Thr	Gln	Ser	Pro	Ala	Ser	Leu	Ala	Val	Ser	Leu
1				5					10					15
Gly	Gln	Arg	Ala	Thr	Ile	Ser	Cys	Lys	Ala	Ser	Gln	Ser	Val	Asp
				20					25					30
Tyr	Asp	Gly	Asp	Ser	Tyr	Met	Asn	Trp	Tyr	Gln	Gln	Lys	Pro	Gly
				35					40					45
Gln	Pro	Pro	Lys	Leu	Leu	Ile	Tyr	Ala	Ala	Ser	Asn	Leu	Glu	Ser
				50					55					60
Gly	Ile	Pro	Ala	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe
				65					70					75
Thr	Leu	Asn	Ile	His	Pro	Val	Glu	Glu	Glu	Asp	Ala	Ala	Thr	Tyr
				80					85					90
Tyr	Cys	Gln	Gln	Ser	Asn	Glu	Asp	Pro	Phe	Thr	Phe	Gly	Ala	Gly
				95					100					105

Thr

<210> 7
 <211> 137
 <212> PRT
 <213> Mus musculus

<400> 7

Asp	Val	Gln	His	Gln	Glu	Ser	Glu	Pro	Asp	Leu	Val	Lys	Pro	Ser
1				5					10					15
Gln	Ser	Leu	Ser	Leu	Thr	Cys	Thr	Val	Thr	Gly	Tyr	Ser	Ile	Thr
				20					25					30
Ser	Gly	Tyr	Asn	Arg	His	Trp	Ile	Arg	Gln	Phe	Pro	Gly	Asn	Lys
				35					40					45
Leu	Glu	Trp	Met	Gly	Tyr	Ile	His	Tyr	Ser	Gly	Ser	Thr	Asn	Tyr
				50					55					60
Asn	Pro	Ser	Leu	Lys	Arg	Arg	Ile	Ser	Ile	Thr	Arg	Asp	Thr	Ser
				65					70					75
Lys	Asn	Gln	Phe	Phe	Leu	Gln	Leu	Asn	Ser	Val	Thr	Thr	Glu	Asp
				80					85					90

Thr Ala Thr Tyr Tyr Cys Ala Arg Gly Ser Ile Tyr Tyr Tyr Gly
95 100 105

Ser Arg Tyr Arg Tyr Phe Asp Val Trp Gly Ala Gly Thr Thr Val
110 115 120

Thr Val Ser Ser Ala Lys Arg His Pro His Leu Ser Ile His Trp
125 130 135

Pro Gly

<210> 8

<211> 453

<212> PRT

<213> Artificial sequence

<220>

<223> humanized mael1, version 1 heavy chain

<400> 8

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
1 5 10 15

Gly Ser Leu Arg Leu Ser Cys Ala Val Ser Gly Tyr Ser Ile Thr
20 25 30

Ser Gly Tyr Ser Trp Asn Trp Ile Arg Gln Ala Pro Gly Lys Gly
35 40 45

Leu Glu Trp Val Ala Ser Ile Thr Tyr Asp Gly Ser Thr Asn Tyr
50 55 60

Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser
65 70 75

Lys Asn Thr Phe Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp
80 85 90

Thr Ala Val Tyr Tyr Cys Ala Arg Gly Ser His Tyr Phe Gly His
95 100 105

Trp His Phe Ala Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser
110 115 120

Ser Ala Ser Thr Lys Gly Lys Gly Pro Ser Val Phe Pro Leu Ala
125 130 135

Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
140 145 150

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn
155 160 165

Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu
170 175 180

Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
185 190 195

Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His

	200		205		210
Lys	Pro	Ser	Asn	Thr	Lys
	215				220
					225
Cys	Asp	Lys	Thr	His	Thr
	230				235
					240
Leu	Gly	Gly	Pro	Ser	Val
	245				250
					255
Thr	Leu	Met	Ile	Ser	Arg
	260				265
					270
Asp	Val	Ser	His	Glu	Asp
	275				280
					285
Asp	Gly	Val	Glu	Val	His
	290				295
					300
Gln	Tyr	Asn	Ser	Thr	Tyr
	305				310
					315
His	Gln	Asp	Trp	Leu	Asn
	320				325
					330
Asn	Lys	Ala	Leu	Pro	Ala
	335				340
					345
Lys	Gly	Gln	Pro	Arg	Glu
	350				355
					360
Arg	Glu	Glu	Met	Thr	Lys
	365				370
					375
Lys	Gly	Phe	Tyr	Pro	Ser
	380				385
					390
Gly	Gln	Pro	Glu	Asn	Asn
	395				400
					405
Ser	Asp	Gly	Ser	Phe	Phe
	410				415
					420
Ser	Arg	Trp	Gln	Gln	Gly
	425				430
					435
Glu	Ala	Leu	His	Asn	His
	440				445
					450

Pro Gly Lys

<210> 9

<211> 218

<212> PRT

<213> Artificial sequence

<220>

<223> humanized maell, version 1, light chain

<400> 9

Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val
1 5 10 15

Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Val Asp
20 25 30

Tyr Asp Gly Asp Ser Tyr Met Asn Trp Tyr Gln Gln Lys Pro Gly
35 40 45

Lys Ala Pro Lys Leu Leu Ile Tyr Ala Ala Ser Tyr Leu Glu Ser
50 55 60

Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
65 70 75

Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr
80 85 90

Tyr Cys Gln Gln Ser His Glu Asp Pro Tyr Thr Phe Gly Gln Gly
95 100 105

Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser Val Phe
110 115 120

Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser
125 130 135

Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val
140 145 150

Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu
155 160 165

Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
170 175 180

Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
185 190 195

Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr
200 205 210

Lys Ser Phe Asn Arg Gly Glu Cys
215

<210> 10

<211> 8

<212> PRT

<213> Homo sapiens

<400> 10

Phe Asp Leu Phe Ile Arg Lys Ser
1 5

<210> 11

<211> 9

<212> PRT

<213> Homo sapiens

<400> 11

Lys Asp Thr Leu Met Ile Ser Arg Thr
1 5

<210> 12
<211> 6
<212> PRT
<213> Homo sapiens

<400> 12
Ala Pro Ser Lys Gly Thr
1 5

<210> 13
<211> 6
<212> PRT
<213> Homo sapiens

<400> 13
Ser His Glu Asp Pro Gln
1 5

<210> 14
<211> 11
<212> PRT
<213> Homo sapiens

<400> 14
Ser Arg Ala Ser Gly Lys Pro Val Asn His Ser
1 5 10

<210> 15
<211> 11
<212> PRT
<213> Homo sapiens

<400> 15
Tyr Val Asp Gly Val Gln Val His Asn Ala Lys
1 5 10

<210> 16
<211> 10
<212> PRT
<213> Homo sapiens

<400> 16
Gly Thr Arg Asp Trp Ile Glu Gly Glu Thr
1 5 10

<210> 17
<211> 10
<212> PRT
<213> Homo sapiens

<400> 17
Leu His Gln Asp Trp Leu Asp Gly Lys Glu
1 5 10

<210> 18
<211> 4
<212> PRT
<213> Homo sapiens

<400> 18
 Arg Ala Leu Met
 1

<210> 19
 <211> 4
 <212> PRT
 <213> Homo sapiens

<400> 19
 Ala Pro Ile Glu
 1

<210> 20
 <211> 6
 <212> PRT
 <213> Homo sapiens

<400> 20
 Lys Glu Glu Lys Gln Arg
 1 5

<210> 21
 <211> 6
 <212> PRT
 <213> Homo sapiens

<400> 21
 Pro Arg Glu Gln Gln Tyr
 1 5

<210> 22
 <211> 5
 <212> PRT
 <213> Homo sapiens

<400> 22
 Gln Cys Arg Val Thr
 1 5

<210> 23
 <211> 5
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Modified IgG1-derived sequence

<400> 23
 Ala Cys Ala Val Ala
 1 5

<210> 24
 <211> 8
 <212> PRT
 <213> Homo sapiens

<400> 24
 Gln Lys His Trp Leu Ser Asp Arg
 1 5

<210> 25
 <211> 8
 <212> PRT
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 <220>
 <223> Modified IgG1-derived sequence

 <400> 25
 Ala Ala Ala Trp Leu Ala Ala Ala
 1 5

 <210> 26
 <211> 4
 <212> PRT
 <213> Mus musculus

 <400> 26
 Tyr Asp Gly Asp
 1

 <210> 27
 <211> 8
 <212> PRT
 <213> Homo sapiens

 <400> 27
 Phe Asp Leu Phe Ile Arg Lys Ser
 1 5

 <210> 28
 <211> 9
 <212> PRT
 <213> Homo sapiens

 <400> 28
 Lys Asp Thr Leu Met Ile Ser Arg Thr
 1 5

 <210> 29
 <211> 4
 <212> PRT
 <213> Homo sapiens

 <400> 29
 Phe Asp Leu Phe
 1

 <210> 30
 <211> 4
 <212> PRT
 <213> Artificial sequence

 <220>
 <223> Mutant IgE Fc(epsilon)3 sequence fragment

 <400> 30
 Gln Asp Leu His
 1

<210> 31
<211> 6
<212> PRT
<213> Homo sapiens

<400> 31
Ala Pro Ser Lys Gly Thr
1 5

<210> 32
<211> 6
<212> PRT
<213> Homo sapiens

<400> 32
Ser His Glu Asp Pro Gln
1 5

<210> 33
<211> 11
<212> PRT
<213> Homo sapiens

<400> 33
Ser Arg Ala Ser Gly Lys Pro Val Asn His Ser
1 5 10

<210> 34
<211> 11
<212> PRT
<213> Homo sapiens

<400> 34
Tyr Val Asp Gly Val Gln Val His Asn Ala Lys
1 5 10

<210> 35
<211> 6
<212> PRT
<213> Homo sapiens

<400> 35
Ser Arg Ala Ser Gly Lys
1 5

<210> 36
<211> 6
<212> PRT
<213> Artificial sequence

<220>
<223> Mutant IgE Fc(epsilon)3 sequence fragment

<400> 36
Ala Ala Ala Ala Gly Ala
1 5

<210> 37
<211> 6
<212> PRT
<213> Homo sapiens

<400> 37
Lys Glu Glu Lys Gln Arg
1 5

<210> 38
<211> 6
<212> PRT
<213> Homo sapiens

<400> 38
Pro Arg Glu Gln Gln Tyr
1 5

<210> 39
<211> 6
<212> PRT
<213> Homo sapeins

<400> 39
Lys Glu Glu Lys Gln Arg
1 5

<210> 40
<211> 6
<212> PRT
<213> Artificial sequence

<220>
<223> Mutant sequence substituted in place of IgE Fc(epsilon)3 fragment

<400> 40
Ala Glu Ala Lys Ala Arg
1 5

<210> 41
<211> 6
<212> PRT
<213> Homo sapiens

<400> 41
Lys Glu Glu Lys Gln Arg
1 5

<210> 42
<211> 6
<212> PRT
<213> Artificial sequence

<220>
<223> Mutant sequence substituted in place of IgE Fc(epsilon)3 fragment

<400> 42
Lys Ala Glu Ala Gln Ala
1 5

<210> 43
<211> 6
<212> PRT
<213> Homo sapiens

<400> 43

Lys Glu Glu Lys Gln Arg
1 5

<210> 44

<211> 6

<212> PRT

<213> Artificial sequence

<220>

<223> Mutant sequence substituted in place of IgE Fc(epsilon)3 fragment

<400> 44

Ala Ala Glu Ala Gln Ala
1 5

<210> 45

<211> 10

<212> PRT

<213> Homo sapiens

<400> 45

Gly Thr Arg Asp Trp Ile Glu Gly Glu Thr
1 5 10

<210> 46

<211> 10

<212> PRT

<213> Artificial sequence

<220>

<223> Mutant sequence substituted in place of IgE Fc(epsilon)3 fragment

<400> 46

Leu His Gln Asp Trp Leu Asp Gly Lys Glu
1 5 10

<210> 47

<211> 4

<212> PRT

<213> Homo sapiens

<400> 47

Glu Gly Glu Thr
1

<210> 48

<211> 4

<212> PRT

<213> Artificial sequence

<220>

<223> Mutant sequence substituted in place of IgE Fc(epsilon)3 fragment

<400> 48

Ala Gly Ala Ala
1

<210> 49

<211> 9

<212> PRT

<213> Homo sapiens

<400> 49

Thr Arg Asp Trp Ile Glu Gly Glu Thr
1 5

<210> 50

<211> 9

<212> PRT

<213> Artificial sequence

<220>

<223> Mutant sequence substituted in place of IgE Fc(epsilon)3 fragment

<400> 50

His Gln Asp Trp Leu Asp Gly Lys Glu
1 5

<210> 51

<211> 4

<212> PRT

<213> Homo sapiens

<400> 51

Glu Gly Glu Thr
1

<210> 52

<211> 4

<212> PRT

<213> Artificial sequence

<220>

<223> Mutant sequence substituted in place of IgE Fc(epsilon)3 fragment

<400> 52

Asp Gly Lys Glu
1

<210> 53

<211> 5

<212> PRT

<213> Homo sapiens

<400> 53

Gln Cys Arg Val Thr
1 5

<210> 54

<211> 5

<212> PRT

<213> Artificial sequence

<220>

<223> Mutant sequence substituted in place of IgE Fc(epsilon)3 fragment

<400> 54

Ala Cys Ala Val Ala
1 5

<210> 55

<211> 4
<212> PRT
<213> Homo sapiens

<400> 55
Arg Ala Leu Met
1

<210> 56
<211> 4
<212> PRT
<213> Artificial sequence

<220>
<223> Mutant sequence substituted in place of IgE Fc(epsilon)3 fragment

<400> 56
Ala Pro Ile Glu
1

<210> 57
<211> 8
<212> PRT
<213> Homo sapiens

<400> 57
Gln Lys His Trp Leu Ser Asp Arg
1 5

<210> 58
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> Mutant sequence substituted in place of IgE Fc(epsilon)e fragment

<400> 58
Ala Ala Ala Trp Leu Ala Ala Ala
1 5

<210> 59
<211> 4
<212> PRT
<213> Homo sapiens

<400> 59
Pro Arg Ala Ala
1

<210> 60
<211> 4
<212> PRT
<213> Artificial sequence

<220>
<223> Mutant sequence substituted in place of IgE Fc(epsilon)3 fragment

<400> 60
Gln Pro Arg Glu
1

<210> 61
<211> 6
<212> PRT
<213> Homo sapiens

<400> 61
Ala Ser Pro Ser Gln Thr
1 5

<210> 62
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> Mutant sequence substituted in place of IgE Fc(epsilon)3 fragment

<400> 62
Leu His Asn His Tyr
1 5

<210> 63
<211> 5
<212> PRT
<213> Homo sapiens

<400> 63
Ser Pro Ser Gln Thr
1 5

<210> 64
<211> 5
<212> PRT
<213> Homo sapiens

<400> 64
Ala Pro Ala Ala Ala
1 5

<210> 65
<211> 451
<212> PRT
<213> Artificial sequence

<220>
<223> Full-length heavy chain sequence corresponding to F(ab)8b of Table 9

<400> 65
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
1 5 10 15
Gly Ser Leu Arg Leu Ser Cys Ala Val Ser Gly Tyr Ser Ile Thr
20 25 30
Ser Gly Tyr Ser Trp Asn Trp Ile Arg Gln Ala Pro Gly Lys Gly
35 40 45
Leu Glu Trp Val Ala Ser Ile Thr Tyr Asp Gly Ser Thr Asn Tyr
50 55 60

Asn	Pro	Ser	Val	Lys	Gly	Arg	Ile	Thr	Ile	Ser	Arg	Asp	Asp	Ser	65	70	75
Lys	Asn	Thr	Phe	Tyr	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	80	85	90
Thr	Ala	Val	Tyr	Tyr	Cys	Ala	Arg	Gly	Ser	His	Tyr	Phe	Gly	His	95	100	105
Trp	His	Phe	Ala	Val	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	110	115	120
Ser	Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	125	130	135
Ser	Lys	Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	140	145	150
Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	155	160	165
Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	170	175	180
Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	185	190	195
Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	Cys	Asn	Val	Asn	His	Lys	Pro	200	205	210
Ser	Asn	Thr	Lys	Val	Asp	Lys	Lys	Val	Glu	Pro	Lys	Ser	Cys	Asp	215	220	225
Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	230	235	240
Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	245	250	255
Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	260	265	270
Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	275	280	285
Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	290	295	300
Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	305	310	315
Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	320	325	330
Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	335	340	345
Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Glu	350	355	360
Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly			

				365					370					375
Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln
				380					385					390
Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp
				395					400					405
Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg
				410					415					420
Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Clu	Ala
				425					430					435
Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly
				440					445					450

Lys

<210> 66

<211> 451

<212> PRT

<213> Artificial sequence

<220>

<223> Full-length heavy chain sequence corresponding to F(ab)8a of Table 9

<400> 66

Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly
1				5					10					15
Gly	Ser	Leu	Arg	Leu	Ser	Cys	Ala	Val	Ser	Gly	Tyr	Ser	Ile	Thr
				20					25					30
Ser	Gly	Tyr	Ser	Trp	Asn	Trp	Ile	Arg	Gln	Ala	Pro	Gly	Lys	Gly
				35					40					45
Leu	Glu	Trp	Val	Ala	Ser	Ile	Thr	Tyr	Asp	Gly	Ser	Thr	Asn	Tyr
				50					55					60
Asn	Pro	Ser	Leu	Lys	Gly	Arg	Ile	Thr	Ile	Ser	Arg	Asp	Asp	Ser
				65					70					75
Lys	Asn	Thr	Phe	Tyr	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp
				80					85					90
Thr	Ala	Val	Tyr	Tyr	Cys	Ala	Arg	Gly	Ser	His	Tyr	Phe	Gly	His
				95					100					105
Trp	His	Phe	Ala	Val	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser
				110					115					120
Ser	Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser
				125					130					135
Ser	Lys	Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val
				140					145					150
Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly
				155					160					165

Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	
				170					175					180	
Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	
				185					190					195	
Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	Cys	Asn	Val	Asn	His	Lys	Pro	
				200					205					210	
Ser	Asn	Thr	Lys	Val	Asp	Lys	Lys	Val	Glu	Pro	Lys	Ser	Cys	Asp	
				215					220					225	
Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	
				230					235					240	
Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	
				245					250					255	
Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	
				260					265					270	
Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	
				275					280					285	
Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	
				290					295					300	
Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	
				305					310					315	
Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	
				320					325					330	
Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	
				335					340					345	
Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Glu	
				350					355					360	
Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	
				365					370					375	
Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	
				380					385					390	
Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	
				395					400					405	
Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	
				410					415					420	
Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	
				425					430					435	
Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	
				440					445					450	

Lys

<210> 67
 <211> 218
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Full-length light chain sequence corresponding to F(ab)9 of Table 9

<400> 67
 Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Leu Ser Val Ser Val
 1 5 10 15
 Gly Asp Arg Ala Thr Ile Thr Cys Arg Ala Ser Gln Ser Val Asp
 20 25 30
 Tyr Asp Gly Asp Ser Tyr Met Asn Trp Tyr Gln Gln Lys Pro Gly
 35 40 45
 Lys Ala Pro Lys Leu Leu Ile Tyr Ala Ala Ser Tyr Leu Glu Ser
 50 55 60
 Gly Ile Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 65 70 75
 Thr Leu Thr Ile Ser Ser Val Gln Pro Glu Asp Phe Ala Thr Tyr
 80 85 90
 Tyr Cys Gln Gln Ser His Glu Asp Pro Tyr Thr Phe Gly Gln Gly
 95 100 105
 Thr Lys Leu Glu Ile Lys Arg Thr Val Ala Ala Pro Ser Val Phe
 110 115 120
 Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser
 125 130 135
 Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val
 140 145 150
 Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu
 155 160 165
 Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
 170 175 180
 Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
 185 190 195
 Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr
 200 205 210
 Lys Ser Phe Asn Arg Gly Glu Cys
 215

<210> 68
 <211> 451
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Full-length heavy chain sequence corresponding to F(ab)9 of Table 9

<400> 68

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
1 5 10 15

Gly Ser Leu Arg Leu Ser Cys Ala Val Ser Gly Tyr Ser Ile Thr
20 25 30

Ser Gly Tyr Ser Trp Asn Trp Ile Arg Gln Ala Pro Gly Lys Gly
35 40 45

Leu Glu Trp Met Gly Ser Ile Thr Tyr Asp Gly Ser Thr Asn Tyr
50 55 60

Asn Asp Ser Leu Lys Gly Arg Ile Thr Val Ser Arg Asp Asp Ser
65 70 75

Lys Asn Thr Phe Tyr Leu Gln Leu Asn Ser Ala Arg Ala Glu Asp
80 85 90

Thr Ala Val Tyr Tyr Cys Ala Arg Gly Ser His Tyr Phe Gly His
95 100 105

Trp His Phe Ala Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser
110 115 120

Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser
125 130 135

Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val
140 145 150

Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly
155 160 165

Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
170 175 180

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser
185 190 195

Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro
200 205 210

Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp
215 220 225

Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly
230 235 240

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu
245 250 255

Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
275 280 285

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
290 295 300

Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln
				305					310					315
Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys
				320					325					330
Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly
				335					340					345
Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Glu
				350					355					360
Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly
				365					370					375
Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln
				380					385					390
Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp
				395					400					405
Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg
				410					415					420
Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala
				425					430					435
Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly
				440					445					450

Lys